Sapporo Medical Journal
Volume 55, Issue 04, April, 2021

Hospital Readmission:What is the most exactly related factors?A systematic review

Maya A. Rusady[1], Budi Hidayat[2]
[1]Doctoral Candidate, Faculty of Public Health, University of Indonesia
[2]Professor of Health Economics and Health Insurance, Faculty of Public Health, University of Indonesia

Abstract— Hospital readmissions which could indicate low quality of hospital services have been an on-going issue during the implementation of the Indonesian National Health Insurance (JKN) program. A systematic review of 20 eligible articles to assess the factors related to hospitalreadmissions was carried out from around 290.000 screened articles published from 2000 until 2019 with the inclusion criteria of full-text articles, non-duplicated and published in either English or Indonesian articles were. It was found that inpatient discharge management in hospitals is arranged based on the payment system. An early discharge may occur from insufficient hospital payment tariff. JKN should model its readmission criteria and rearrange its payment system to reduce readmission and improve the quality of healthcareservices.

Keywords— Readmission, Early Discharged, Payment System

1. Introduction

The Jaminan Kesehatan Nasional (JKN) is Indonesia's National Social Security for Health, as mandated by The Social Security Act Number 40 of 2004 and The Administrative Bodies for Social Security Act Number 24 of 2011. Based on these mandates, the government has issued numerous regulations as operational guidance, such as premium contributions mechanisms, provider payment system and benefit packages. One of the significant changes in provider payment system is the implementation of prospective payment systems, as opposed to the prior fee-for-service system, namely capitation for primary healthcare facilities and Diagnosis Related Groups (DRG) for secondary care facilities. The Indonesian adopted DRG, known as The Indonesian Case Based Group (INA CBG), simply interpreted as payment unit per diagnosis instead of payment unit per medical service received. The system implies that the hospital received bulk payment of each specific diagnosis based on average expenses incurred in several hospitals related to that diagnosis[(1)].
The hospitals responded to the payment system changes initially by resistance, but in time they adjusted to the changes by instigating several strategies. Such strategies are reducing the length of stay, reducing the intensity of service, skimming, changing coding practice, changing patient admission patterns and improving hospital reputations. Among those strategies, three of them are highly related to the inpatient admissions, which are length of stay, intensity of service and admission pattern[(2)].
There is another challenging issue in readmission analysis, in which not all readmission cases are preventable. Although there have been numerous studies attempting to define preventable readmission, however up to recently there has been no systematic stipulation that differentiate preventable and non-preventable readmission[(3)]. Data from BPJS Kesehatan, the administrative bodies of JKN program, shown that out of total IDR 250 Trillion spent on health service during 2014 to 2017, 81.2% were spent on secondary care. BPJS Kesehatan also indicated that 82.4% of inpatient claim of 2017 were potential readmission in which 4.1% were preventable, costing the institution inefficiency approximately IDR 4.5 trillion.

Readmissions may affect the quality-of-service delivery and in a long term may compromise the sustainability of social security program. Studies from various countries also resulted in different definition

of readmissions. In Indonesia itself, there has been several locally conducted studies but none of the national scope which may use as a foundation to define parameter of readmission. This challenging issue prompted the author to analyze readmission cases and to disclose the readmission pattern in Indonesia's JKN program. It is expected that the study conducted would result in a consensus of operational definition of readmission and time interval of the said readmissions which could be used as policy recommendation to develop Pay for Performance (P4P) for more effective payment system. However, this paper focused on finding the most related factors of readmission.

2. Methods

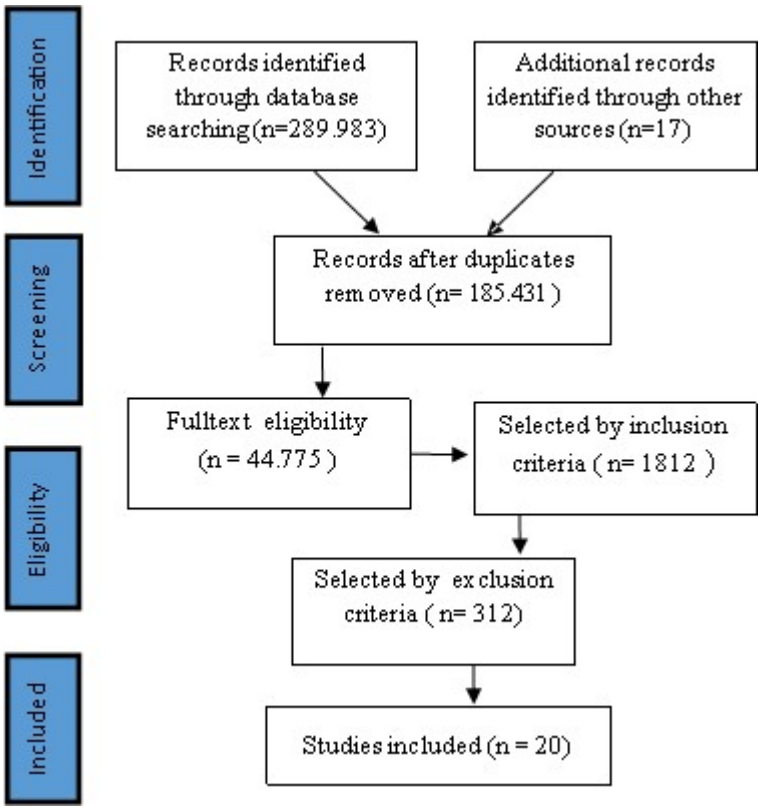
2.1 Search Strategy

The protocol for systematic review refers to PRISMA-P (Preferred Reposting Items for Systematic review and Meta-Analysis Protocols) 2015. Systematic searches were performed in three databases (Web of Science, PubMed, Pro Quest, and Embase) to retrieve peer-reviewed publications of relevant empirical publications. Database search from 2000 to 2019. The search term includes keywords: readmission, early discharged, and payment system readmission.

The titles and abstract studies were screened to be used as a reference. If the reference search turned out to be irrelevant and incomplete with the material to be submitted, then they were omitted.The locations of the studies were ranged from a broad and increasingly narrow, which started from all over the world then narrowed down to Indonesia. The languages of the studies to be reviewed were those written in English and Indonesian. Other limitations of the studies to be reviewed were those included related factors that cause readmission in the hospital. Criteria of inclusion for this study are studies conducted between 2000-2019 in country incidence hospital readmission, related factors of the readmission should be the main result. Criteria of exclusion is any study that does not match the criteria above.

2.2 Data Extraction

Titles, abstracts, and discussions are screened to identify studies that include relevance to serve as a reference. The contents of the entire reference study were investigated to easily categorize the factors that affect readmission into classes. These classes of related factors will lead us to conclusions by comparing the classes as a reference. Data were then organized into a structured four table, and in the conclusion, an analysis were performed to make conclusion based on their references.



Picture 1. PRISMA diagram

3. Results

Focused on factors related to and have output about readmission, papers were abstracted as it shows below.

No	Title	Author	Year	Readmission interval	Factors related to readmission rate	Output
1	Hospital Readmission as a Measure of Quality of Health Care	Jochanan Benbassat, Mark Taragin	2000	15 days – 24 months	Diagnostic : The highest readmission rates ware in high risk or severely ill patient. Mostly with heart failure and chronic disease. Patient's Demographic: Sex, race, insurance type, socioeconomic, comorbid and behavioral problems. Quality of care: failure to provide adequate health care, hospital bed availability, discharge destination, inappropriate health care	Readmission rates decline after predischarge review and follow up the patient after discharge.

2.	Predicting 30-day all-cause hospital readmissions	Mollie Shulan, Kelly Gao, Cristal Dea Moore	2013	30 day	Male sex, age, health insurance, tobacco use, length of stay,	
3.	Hospital Discharge And Readmission	Eric Alper, Terrence A O'Malley, Jeffrey	2017	30 days	Factors that affect readmission: 1. Healthservice: Premature discharge, inadequate post-discharge support, insufficient follow-up, Therapeutic errors, medication issues, failed handoffs, complications after procedures, nosocomial infections, pressure ulcers and patientfalls. 2. Clinical condition: Medication, Polypharmacy, specific condition e.g., chronic obstructive pulmonary disease, diabetes, heart failure, stroke, cancer, depression, sepsis. 3. Demographics: race, low health literacy, lower socioeconomic status, discharge against medical advice.	Reduce readmission by using screening tools and other intervention such as telephone call (follow up after discharge), home visit, and telemonitoring.
4.	Potentially Avoidable 30-Day Hospital Readmissions In Medical Patients	Jacques Donze, Drahomir Aujesky, Deborah William s, JeffreyL, Schnipper	2010	30 day	Readmission avoidable factors: low hemoglobin level at discharge, oncology discharge patient, procedure admission index, admission index type, length of stay.	Patient with one of those could be identified 2 or more days before discharge, to reduce the rate of avoidable readmission
5.	Preventability of Early Vs. Late Hospital Readmissions in A National Cohort of	Kelly L. Graham et al	2018	Early readmission (0-7days after discharge	Diagnosis and clinical management: missed diagnosing, inadequate treatment, too soon discharge. Monitoring issues after discharge,	Early readmission was more likely to be preventable. Preventing readmission

	General MedicinePatients			), late readmission (8-30 days)	elderly patient end of life management, and medication.	more likely to prevent within the first week after discharge.
6.	Conditions with The Largest Number of Adult Hospital Readmissions by Payer, 2011	Anika L. Hines, Marguerite L Barrett, Joanna Jiang, Claudia A Steiner	2011	30-day	Conditions that cause the largest number of readmission: heart failure, septicemia, pneumonia, mood disorders, schizophrenia, diabetes, chemotherapy, and surgical/medical care complications.	Different payers have different largest number of cause condition.
7.	Predicting 7-day, 30-day, and 60-day all-cause unplanned readmission: a case study ofa Sydney Hospital	Yashar Maali, Oscar Perez-Cobcha, Enrico Coiera, David Roffe, Blanca Gallego	2018	7-day, 30-day and 60- day	Predictors of readmission: previous history of healthcare utilization, urgency of index admission, old age, comorbidities related to cancer, psychosis, and drug-abuse, abnormal pathology at discharge, and public patient.	Readmission was associated with longer hospital stay, older patients with comorbidities and higher use of acutecare.
8.	Factors associated with readmission to the hospital within 30 days in patients with inflammatory bowel disease	Dejan Micic, John N Gaetano, Jonah N Rubin, Russell D Cohen, Atsushi Sakuraba, David T Rubin.	2017	30 days	Factors associated with readmission: patient age, sex, smoking, anxiety, opioid dependence, disease complications and performance of surgery.	Focusing on the timely performance of surgery, identifying patient with anxiety, opioid dependence has the potential to decrease readmission.
9.	Factors Associated with 28-day hospital readmission after stroke inAustralia	Monique F.K, Mark Longworth, Michael Pollack, Christoper Levi, Dominique A Cadillac	2018	28-day	The primary reason for readmission: stroke, cardiovascular disease, cardinal manifestation, surgical procedures, falls and facture.	Readmitted patients were more likely to have a documented history of ischemic heart disease, have been dependent at discharge and experience 1or more severe complications.

10.	Patients' and Providers' Perspective on Medica; Relatedness and Potential Preventability of Hospital Readmission Within 30 days of Discharge	Elien et al	2019	30 days	21 % of readmission were medication related.	58% of medication-related readmissions were potentially preventable.
11.	Understanding patient-centered readmission factors: a multi- site, mixed-methods study	Ryan Greysen, James D Harrison, Sunil Kripalani, et all	2015	30 days	Patient-related Readmission factors: **Discharge Planning** (difficulty with transportation, discharged too soon, financial/insurance issues), **Medication Safety** (difficulty taking medications correctly, ineffective medications), **Social**	There are still important resource gaps in the post-acute phase that lead to readmission. Future efforts should focus on patient management, clinical and social support after
					Support (inadequate social support), **Care Coordination** (transition care issues), **Hospital care quality** (Poor Quality care), **Self-Management** (difficulty following diet, difficulty contacting doctor) Other issues (Difficulty with basic needs)	discharge.
12.	Redefining Readmission Risk Factors for General Medicine Patients	Nazima Allaudeen, Arpana Vidyarthi, Judith Maseli, Andrew Auerbach.	2011	30-day	Risk factors associated with readmission are race, inpatient use of narcotics and corticosteroids, cancer, renal failure, heart failure, weight loss, Medicaid payer status.	Reducing readmission requires identifications of hig risk patients via education or patient-engagement interventions.

13.	Costly Hospital Readmissions and Complex Chronic Illness	Bernard Friedman, H Joanna Jiang, Anne Elixhauster	2008	(did not mention)	The highest number of readmission cases: Malignant neoplasm, Mental disorder, and heart failure. There was an increasing effect on the number of chronic conditions. The severity of illness had a strong effect to readmission.	Payer categories were important. Medicare and Medicaid patients had the highest likelihood of readmission, while self- pay had a lower rate. Readmission and total hospital cost could be significantly reduced if health plan services were focused on patient with relatively high number of chronic conditions.
14.	Differential risk factors for early and later hospital readmission of older patients	Pascale Cornette, William D Hoore, Brigitte Malhomme, Dominique Van Pee, PhilippeMert and Crishtian Swine	2005	0-1 month (early) and 2-3 months after discharge (later)	Readmitted patients had a higher mean number of comorbid diseases. Factors related to early readmission were mainly medical. Factors associated with later readmission were functional factors related to basic and instrumental ADL performance (pre-morbid functional status)	Older patients' risk for readmission within 3 months of hospital discharge shows early identifiable characteristics which may influence the process of care and discharge planning and may help to prevent this outcome. A social effort is required to address these needs of frail elderly patients fromthe beginning of their hospital admission.

15.	Factors influencing early and late readmissions in Australia hospitalized patients and investigating role of admission nutrition status as a predictor of hospital readmission: a cohort study	Yogesh Sharma, Michelle Miller, Bilingsley Kaambwa, Rashmi Shahi, Paul Hakendorf, Chris Horwood, Campbell Thompson	2018	Early (0-7 days), late (8-180days)	Malnourished patients had a higher risk of both and late readmission. Indigenous patients were more likely to be readmitted early after hospital discharge. Late readmission occurred more likely among patients who were living alone at home	A higher number of comorbidities, LOS and higher complications during admission was associated with a higher readmission risk. Nutrition status during index admission predicts both early and latereadmission.
16	Incidence of potentially avoidable urgent readmissions and their relation to all-cause urgent readmissions	Carld van Walraven, Alison Jennings, Monica Taljaard, Irfan Dhalla, Shane English, Sunita Mulpuru, Saul Blecker, Alan J. Foster	2011	(did not mentio n)	The contributing factors to readmission: Management error, surgical complications and medication-related events. Avoidable readmission: Nosocomial infection, system error, diagnostic error and procedure-related events.	Early readmission was more likely avoidable than later readmission.
17	Readmission of older acutely admitted medical patients after short-term admissions in Denmark: A Nationwide cohort study	M Klinge, M Aasbrenn, B Ozturk, CF, Christiansen, C. Suetta, E Pressel, and FE Nielsen	2020	30 days	Risk factors for readmission: Male gender, The burden of comorbidity and several primary discharge diagnoses. Male sex and Charlson Comorbidity Index ≥3 were associated with an increased risk of readmission. Discharge diagnosis associate with increased risk of readmission were heart failure, chronic pulmonary disease, dehydration, constipation, anemia, pneumonia, urinary tract infection, suspicion of malignancy and abdominal pain.	Older patients were identified as an increased risk of readmission. Transitional care intervention programs delivered to older patients by a discharge nurse coach during the hospital stay and after discharge have shown reduced readmission.
18.	The Cost of Preventing Readmissions: Why Surgeons Should Lead the Effort	Mackenzie Postel, Paul N Frank, Tod Barry, Nancy Satou, Richard Shemin,	2014	30 days	Patient with preventable 30-day readmission were more likely to be older, to have a shorter LOS, heart failure, and have been referred to a cardiac rehabilitation facility.	Readmission prevention programs would be best applied to surgical services with a high volume of low-risk patients.

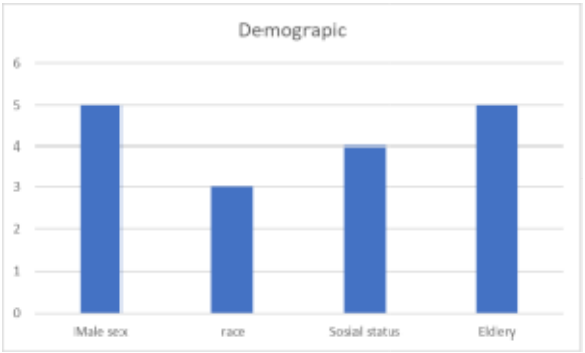
		Peymand Benharash.			Heart failure, insurance status, and race also significant predictors of readmission after cardiac operations.	
19.	Preventability of early vs. late readmission in an academic medical center	Kelly L Graham, Ogenchi Dike, Lauren Doctoroff, Marisa Jupiter, Anita Vanka, Roger B Davis, Edward R Marcantonio	2017	Early (0-7 day post-discharge), late (8-30 days post-discharge)	Readmission was significantly more preventable in the early and causes more by management error and mental status change 24 hours prior to discharge. Premature discharge also represents preventable readmission.	Early readmission had longer LOS, more consultants, and more frequent clinical instability.
20.	Development of prediction model for 30-day acute readmissions among older medical patients: the influence of social factors along with other patient-specific and organizational factors	Sara Fokdal Lehn, Ann-Dorthe Zwisler, Solvejg Gram Henneberg Pedersen, Thomas Gjorup, Lau Casper Thygesen	2019	30-day	Predicted factors of readmission: low education level, male gender, specific diagnosis, higher CCI score, Longer hospital stay, cognitive problem, medical treatment for thyroid disease, acid- related disorders and glaucoma.	

Readmission categorization has different criteria for each paper. Some articles classify readmission based on early readmission and later readmission. Early readmission is readmission from 0-8 days, while later readmission is readmission from > 8 days to 30 days. Some articles even mention readmissions up to the 90th day. Readmission ranges were grouped based on the patient's diagnosis and cases.

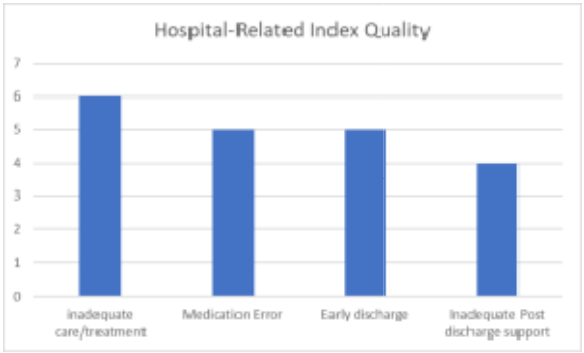
The causes of the readmission were classified into two groups, which are patient demographic and hospital-related quality-index.

3.1 Patient demographic.

It was found that 12 of 20 included articles mentioned that patient demographics were related to readmission. Patient with these demographics were more likely to be readmitted: male sex, low social status, elderly, and race.



Picture 2.Demographicfactors



Picture 3. Hospital-Related Index QualityFactors

The sex male odd ratio were 1.88 (95% CI 1.31-2.71)[5], 1.16 (95% CI 1.07-1.25)[11], 1.15 (95% CI 1.11-1.18)[20]. Low social status included low health literacy, low income, and low education. It needs better communication and proper media to bridge the patient and healthcare servant. Elderly patients need better inpatient management and more likely preventable if health care have special program for older patient, including end of life acceptance process. Race shows patient characteristic based on their background; we found no necessary program upon it.

Patient with these diagnoses were more likely to be readmitted: heart failure (with higher CCI), pulmonary disease, malignancy, and having comorbidity. From all articles included in this paper, heart failure was the most common condition that readmitted. Heart failure patients need special treatment after hospitalization, it seems that definition of readmission for heart failure patient need an adjustment. Malignancy had similar situation with heart failure which needs back and forwards treatment after hospitalization. Comorbidity, however, was preventable when inpatient management and treatment are adequate [23].

3.2. Hospital related index quality.

Half of the included papers mentioned hospital-related index quality as a factor related to readmission; which include inadequate care/treatment, medication error, early discharge, and inadequate post-discharge support.

Inadequate intervention/treatment were missed diagnosis, complication after procedure, and treatment errors. This condition along with medication errors was mostly preventable. Early discharge related to payment system that influences treatment/hospital care quality while inadequate post-discharge support was pure influence by hospital managementitself.

In Indonesia, payment regulation influences the quality of health care services. The early discharge occurred by the patient's request or forced home in terms of insufficient insurance [24]. The capitation system is not covered all treatment expenditure. Nevertheless, it could change if there is sufficient data/evidence and stakeholder's consent.

However, post-discharge support needs to be concerned as it showed that post-discharge support beneficial to reducing readmission[8].

4. Discussion

The evidence of most exact factors of readmission needed to be discovered to reduce it. The JKN deficit will continue to roll if systemic therapy is absent. In this paper, we found two major determinants which areavoidable.

Better management, intervention and program is needed for people with low social status and elderly. Screening admission system when patient take their first step in hospital is a way to reducing readmission LACE index, Hospital score, 8Ps are screening tools that identify based on patients' risk scores and riskidentifiers[6].

Missed diagnose, complication after procedure, treatment and medication errors can be prevented by amplify the hospital accreditation process. Also, the strengthening of Cost and Quality Control departments in hospitals is needed. Cost and Quality Control departments responsible to monitor quality guarantee and cost efficiency.

Early discharge is avoidable when payment system is improved. When hospitals get a better

supply/funding, they can amend their performance. Besides, patient's request or forced home can be reduced.

Post-discharge program needs to be developed. Intervention to reduce readmission after discharge via patient-engagement e.g. telephone call, home visits, telemonitoring, and medication management. Those interventions prevent readmission[25].

However, the intervention needs more effort and add some burden to health workers. The hospital capitation/ payment regulation should count the incentive for those effort so that hospital can optimized their services.

5. Conclusion

There are two major determinants for hospital readmissions, which are demographic patients (age, sex, diagnostic) and hospital-related quality-index (service, intervention, regulation). They are preventable by risk screening and better post-discharge management. The hospital capitation should improve so that hospital can optimized their performance.

6. References

[1] Thabrany, H. 2014. *Jaminan Kesehatan Nasional*. RajawaliPress.

[2] Hidayat, B., Pujiyanto, Nurwahyuni, A., & Hidayat, T. 2015. *Caveat INA-CBG: Readmisi, Bloody Discharge dan Supplier Induced Demand : Analisis Data Klaim INA CBG Periode Januari 2014 s.d Juli 2015.*

[3] Stone, J., & Hoffman, G. J. (2010). *Medicare Hospital Readmissions: Issues, Policy Options andPPACA*.

[4] Jochanan Benbassat, Mark Taragin. 2000. *Hospital Readmission as a Measure of Quality of HealthCare.*
Arch Intern Med/Vol. 160.

[5] Mollie Shulan, Kelly Gao, Cristal Dea Moore. 2013. *Predicting 30-day all-cause hospital readmissions*. Health Care Manag Sci (2013).16:167-175.

[6] Eric Alper, Terrence A O'Malley, Jeffrey. 2017. *Hospital Discharge AndReadmission*.

[7] Jacques Donze, Drahomir Aujesky, Deborah Williams, Jeffrey L, Schnipper. 2010. *Potentially Avoidable 30-Day Hospital Readmissions In Medical Patients*. JAMA Intern Med.2013;173(8):632-638.

[8] Kelly L. Graham, Andrew D Auerbach, Jeffrey L Schnipper, Scott A. Flanders, Christoper S.Kim, Edmondo J. Robinson, Gregory W. Ruhnke, et al. 2018. *Preventability Of Early Vs. Late Hospital Readmissions In A National Cohort Of General Medicine Patients*. Ann Intern Med.n2018 June 05; 168(11): 766-774.

[9] Anika L. Hines, Marguerite L Barrett, Joanna Jiang, Claudia A Steiner. 2011. *Conditions With The Largest Number Of Adult Hospital Readmissions By Payer, 2011*. Legal Notes. 2011;3(4):1-3

[10] Yashar Maali, Oscar Perez-Cobcha, Enrico Coiera, David Roffe, Blanca Gallego. 2018. *Predicting 7-day, 30-day and 60-day all-cause unplanned readmission: a case study of a Sydney Hospital*. BMC Medical Informatics and Decision Making (2018)18:1

[11] Dejan Micic, John N Gaetano, Jonah N Rubin, Russell D Cohen, Atsushi Sakuraba, David T Rubin. 2017. *Factors associated with readmission to the hospital within 30 days in patients with inflammatory bowel disease*. PloS ONE 12(8):e082900.

[12] Monique F.K, Mark Longworth, Michael Pollack, Christoper Levi, Dominique A Cadillac. 2018. *Factors Associated with 28-day hospital readmission after stroke in Australia*.Ahajournals.org.

[13] Elien B. Uitvlugt, Marjo J A Janssen, Carl EH Siegert, Anna JA Leenders, Bart JF Van den Bernt, Patricia MLA van den Bernt, Fatma Karapinar. 2019. *Patients' and Providers' Prespective on Medica; Relatedness and Potential Preventabilitu of Hospital Readmission Within 30 days of discharge.* Health Expect. 2020;23:212-219.

[14] Ryan Greysen, James D Harrison, Sunil Kripalani, et all. 2015. *Understanding patient-centered readmission factors: a multi-site, mixed-methods study*. BMJ Qual Saf2017;26:33-41

[15] Nazima Allaudeen, Arpana Vidyarthi, Judith Maseli, Andrew Auerbach.. 2011. *Redefining Readmission Risk Factors for General Medicine Patients*. Journal of Hospital Medicine, Vol.6,No.2.

[16] Bernard Friedman, H Joanna Jiang, Anne Elixhauster. 2008. *Costly Hospital Readmissions and Complex Chronic Illness*. Inquiry 45:408-421.

[17] Pascale Cornette, William D Hoore, Brigitte Malhomme, Dominique Van Pee, Philippe Meert and Crishtian Swine. 2005. *Differential risk factors for early and later hospital readmission of older patients*. Aging Clin Exp Res, Vol.17, No.4: 322-328.

[18] Yogesh Sharma, Michelle Miller, Bilingsley Kaambwa, Rashmi Shahi, Paul Hakendorf, Chris Horwood, Campbell Thompson. 2018. *Factors influencing early and late readmissions in Australia hospitalised patients and investigating role of admission nutrition status as a predictor of hospital readmission: a cohort study*. BMJ Open2018;8:e022246.

[19] Carld van Walraven, Alison Jennings, Monica Taljaard, Irfan Dhalla, Shane English, Sunita Mulpuru, Saul Blecker, Alan J. Foster. 2011. *Incidence of potentially avoidable urgent readmissions and their relation to all-cause urgent readmissions*. CMAJ 2011, 183(14):E1067.

[20] M Klinge, M Aasbrenn, B Ozturk, CF, Christiansen, C. Suetta, E Pressel, and FE Nielsen. 2020. *Readmission of older acutely admitted medical patients after short-term admissions in Denmark: A Nationwide cohort study.* BMC Geriatrics (2020)20:203.

[21] Mackenzie Postel, Paul N Frank, Tod Barry, Nancy Satou, Richard Shemin, Peymand Benharash. 2014. *The Cost of Preventing Readmissions: Why Surgeons Should Lead the Effort.* The American Surgeon, Vol.80: 1003-6.

[22] Kelly L Graham, Ogenchi Dike, Lauren Doctoroff, Marisa Jupiter, Anita Vanka, Roger B Davis, Edward R Marcantonio. 2017. *Preventability of early vs. late readmission in an academic medical center.* PloS ONE 12(6):e0178718.

[23] Sara Fokdal Lehn, Ann-Dorthe Zwisler, Solvejg Gram Henneberg Pedersen, Thomas Gjorup, Lau Casper Thygesen. 2019. *Development of prediction model for 30-day acute readmissions among older medical patients: the influence of social factors along with other patient-specific and organisational factors*. BMJ Open Quality2019;8:e000544

[24] Kurnia Sari, Pujiyanto, Atik Nurwahyuni, Atmiroseva. 2017. *A Study of Readmission Rates and the Implementation of National Health Insurance.* J Int Den Med Res2017;10(3):1055-1059.

[25] Jack BW, Chetty VK, Anthonu D, et al. 2009. *A Reengineered Hospital Discharge Program to Decrease Rehospitalization: A Randomized Trial.* Ann Intern Med.2009;4(4):211-218.